

WHAT IS CLAIMED IS:

- 5 ~~1. A process for screening a plurality of chemical compounds for anti-neoplastic activity comprising:~~
- (a) contacting a compound with a cell containing a polynucleotide comprising a nucleotide sequence selected from the group consisting of SEQ ID NO: 1 – 1067 under conditions wherein said polynucleotide is being expressed, and
- 10 (b) determining a change in expression of at least one of said polynucleotides,
- wherein a change in expression is indicative of anti-neoplastic activity.
- 15 2. The process of claim 1 wherein expression is determined for more than one said gene.
3. The process of claim 1 wherein expression is determined for at least 5 said genes.
- 20 4. The process of claim 1 wherein expression is determined for at least 10 said genes.
5. The process of claim 1 wherein expression is determined for all said genes in a given signature gene set.
- 25 6. A process for determining the cancerous status of a test cell, comprising determining expression in said test cell of at least one gene that includes one of the nucleotide sequences selected from the sequences of SEQ ID NOS: 1 – 1067, or a nucleotide sequence that is at least 95% identical thereto, and then comparing said expression to expression of said at least one gene in at
- 30 least one cell known to be non-cancerous whereby a difference in said expression indicates that said cell is cancerous.

7. The process of claim 6 wherein said expression is the expression of more than one said gene.

5 8. The process of claim 6 wherein said expression is the expression of at least 5 said genes.

9. The process of claim 6 wherein said expression is the expression of at least 10 said genes.

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10. The process of claim 6 wherein said expression is the expression of all said genes.

15 11. A process for determining a cancer initiating, facilitating or suppressing gene comprising the steps of contacting a cell with a cancer modulating agent and determining a change in expression of a gene selected from the group consisting of the gene sequences of SEQ ID NO: 1 – 1067 and thereby identifying said gene as being a cancer initiating or facilitating gene.

20 12. The process of claim 11 wherein the gene determined by said process is an oncogene.

25 13. The process of claim 11 wherein the gene determined by said process is a cancer facilitating gene.

14. The process of claim 11 wherein the gene determined by said process is a cancer suppressor gene.

30 15. The process of claim 11 wherein said cancer modulating agent has the effect of increasing gene expression.

16. The process of claim 11 wherein said cancer modulating agent has the effect of decreasing gene expression.

5 17. A process for treating cancer comprising contacting a cancerous cell with an agent having activity against an expression product encoded by a gene sequence selected from the group consisting of SEQ ID NO: 1 – 1067.

10 18. The process of claim 17 wherein said cancerous cell is contacted *in vivo*.

19. The process of claim 17 wherein said agent comprises a portion having affinity for said expression product.

15 20. The process of claim 19 wherein said portion having affinity for said expression product is an antibody.

21. The process of claim 17 wherein said agent is an apoptosis-inducing agent.

20 22. A process for determining a cancer initiating, facilitating or suppressing gene in a cancer cell comprising determining a change in expression of a gene sequence selected from the group consisting of the sequences of SEQ ID NO: 1 – 1067.

25 23. The process of claim 22 wherein said change in expression is determined by determining a change in gene copy number.

30 24. The process of claim 23 wherein said change in copy number is an increase in copy number.

25. The process of claim 23 wherein said change in copy number is a decrease in copy number.

26. The process of 23 wherein said change in gene copy number is determined by determining a change in expression of messenger RNA encoded
5 by said gene sequence.

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28. The process of claim 23 wherein said gene is a cancer initiating gene.

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29. The process of claim 23 wherein said gene is a cancer facilitating
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30. The process of claim 23 wherein said gene is a cancer suppressing
gene.

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31. A process for diagnosing a cancerous cell comprising determining a
15 cancer initiating, facilitating or suppressing gene according to claim 23.

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32. A process for treating cancer comprising inserting into a cancerous
cell a gene construct comprising an anti-cancer gene operably linked to a
20 promoter or enhancer element such that expression of said anti-cancer gene
causes suppression of said cancer and wherein said promoter or enhancer
element is a promoter or enhancer element modulating a gene sequence
selected from the group consisting of the sequences of SEQ ID NO: 1 – 1067.

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33. The process of claim 32 wherein said anti-cancer gene is a cancer
25 suppressor gene.

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34. The process of claim 32 wherein said anti-cancer gene encodes a
polypeptide having anticancer activity.

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35. The process of claim 33 wherein said polypeptide has apoptotic activity.

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36. The process of claim 31 wherein said inserting into a cancerous cell is accomplished *in vivo*.

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37. The process of claim 31 wherein said inserting into a cancerous cell further comprises use of a viral or plasmid agent and is accomplished either *in vitro* or *in vivo*.

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38. The process of claim 31 wherein said cancer is colon cancer.

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39. The process of claim 37 wherein said cancer is adenocarcinoma.

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40. A process for determining functionally related genes comprising contacting one or more gene sequences selected from the group consisting of the sequences of SEQ ID NO: 1 – 1067 with an agent that modulates expression of more than one gene in such group and thereby determining a subset of genes of said group.

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41. The process of claim 39 wherein said functionally related genes are genes modulating the same metabolic pathway.

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42. The process of claim 39 wherein said genes are genes encoding functionally related polypeptides.

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43. The process of claim 39 wherein said all of genes are genes whose expression is modulated by the same transcription activator or enhancer sequence.

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44. A method for producing a product comprising identifying an agent according to the process of claim 1 wherein said product is the data collected with respect to said agent as a result of said process and wherein said data is sufficient to convey the chemical structure and/or properties of said agent.

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45. A process for screening for an anti-neoplastic agent comprising the steps of:
(a) exposing cells to a chemical agent to be tested for antineoplastic activity, and
(b) determining a change in expression of at least one gene of a signature gene set, or a sequence that is at least 95% identical thereto,

wherein a change in expression is indicative of anti-neoplastic activity.

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46. The process of claim 45 wherein said change in expression is an increase in expression.

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47. The process of claim 45 wherein said change in expression is a decrease in expression.

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48. The process of claim 45 wherein said change in expression is a change in expression of at least 5 genes of said signature gene set.

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49. The process of claim 45 wherein said change in expression is a change in expression of at least 10 genes of said signature gene set.

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50. The process of claim 45 wherein said change in expression is a change in expression of at least half of the genes of said signature gene set.

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